

CLAIM AMENDMENTS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A method comprising:

communicating a combined asynchronous transfer mode/internet protocol (ATM/IP) signal via an optical medium, wherein the combined ATM/IP signal comprises an asynchronous transfer mode (ATM) signal comprising a sequence of pulses that [[is]] are pulse amplitude modulated according to first data that is distinct from second data, wherein the ATM signal is phase modulated with the second data that is based on an internet protocol (IP) signal by:
transmitting the combined ATM/IP signal via the optical medium to a first optical network termination (ONT), wherein the first ONT does not include demodulator circuitry; and
transmitting the combined ATM/IP signal to a second ONT, wherein the second ONT includes the demodulator circuitry.

2. (Currently amended) The method of claim 1, wherein the ATM signal is phase modulated based on the IP signal without exceeding a specified tolerance of a symbol period of the ATM signal.

3. (Previously presented) The method of claim 1, wherein the phase modulating encodes multiple bits of the IP signal per pulse in the ATM signal.

4. (Previously presented) The method of claim 1, wherein the phase modulating encodes two bits of the IP signal per pulse in the ATM signal.

5. (Currently amended) The method of claim 1, further comprising forming the combined ATM/IP signal by:

modulating by pulse amplitude modulation, the ATM signal according to the first data;

and

phase modulating a phase of the ATM signal based on the IP signal.

6. (Previously presented) The method of claim 1, wherein the combined ATM/IP signal is transmitted via an ATM-based network comprising a G.983-based network.

7. (Currently amended) The method of claim 1, wherein communicating comprises:
transmitting the combined ATM/IP signal via the optical medium to a first optical
network termination (ONT), wherein the first ONT does not include
demodulator circuitry; and
transmitting the combined ATM/IP signal to a second ONT, wherein the second
ONT includes demodulator circuitry;
wherein the first ONT is at a first user location and the second ONT is at a second user location, and wherein the first ONT is to extract the first data
comprising an AMT ATM stream uniquely associated with the first user
location.

8. (Previously presented) The method of claim 1, wherein the combined ATM/IP signal is communicated via a passive optical network.

9-14. (Canceled).

15. (Currently amended) An apparatus to communicate an asynchronous transfer mode (ATM) signal and an internet protocol (IP) signal, the apparatus comprising:
an optical line terminal (OLT), the OLT comprising a phase modulator configured to
phase modulate the ATM signal based on the IP signal to produce a combined
asynchronous transfer mode/internet protocol (ATM/IP) signal, wherein the ATM
signal is pulse amplitude modulated with an ATM data stream, the OLT further to
output the combined ATM/IP signal;
~~wherein the combined ATM/IP signal is transmitted to a first optical network termination~~
~~(ONT) that does not include demodulator circuitry and to a second ONT that~~
~~includes the demodulator circuitry.~~

16. (Currently amended) The apparatus of claim 15, wherein the phase modulator is
further configured to phase modulate the ATM signal based on the IP signal without exceeding a
specified tolerance of a symbol period of the ATM signal.

17. (Previously presented) The apparatus of claim 15, wherein the phase modulator is
further configured to encode multiple bits of the IP signal per pulse in the ATM signal.

18-24. (Canceled).

25. (Previously presented) The method of claim 1, further comprising demodulating a
received signal and outputting a received IP stream derived from the received signal.

26. (Previously presented) The apparatus of claim 15, wherein the OLT further
comprises a phase demodulator.

27. (New) The apparatus of claim 15, wherein the phase modulator is further configured
to encode the ATM signal with two bits of data from the IP signal per pulse.

28. (New) The method of claim 1, wherein pulse amplitude modulating includes setting an amplitude of each pulse of the ATM signal according to a value of a corresponding bit of the first data.

29. (New) A method comprising:
phase modulating a first signal based on second information to produce a combined signal, wherein the first signal is an asynchronous transfer mode (ATM) signal that is pulse amplitude modulated based on first information, and wherein the first information is distinct from the second information; and
transmitting the combined signal via an optical medium.

30. (New) The method of claim 29, wherein the second information includes an internet protocol (IP) stream.

31. (New) The method of claim 29, wherein the ATM signal comprises a plurality of pulses and wherein the phase modulating encodes multiple bits per pulse of the ATM signal.

32. (New) The method of claim 29, wherein the ATM signal comprises a plurality of pulses and wherein the phase modulating encodes two bits per pulse of the ATM signal.